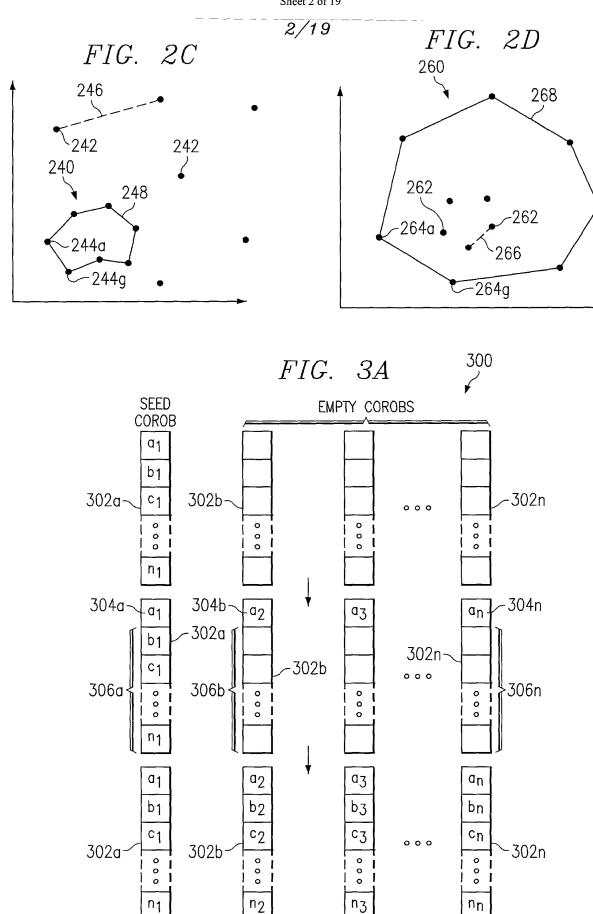Attorney's Docket: 066300.0125
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FIG. 1

FIG. 2A

FIG. 2B

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FIG. 2C

FIG. 2D

FIG. 3A

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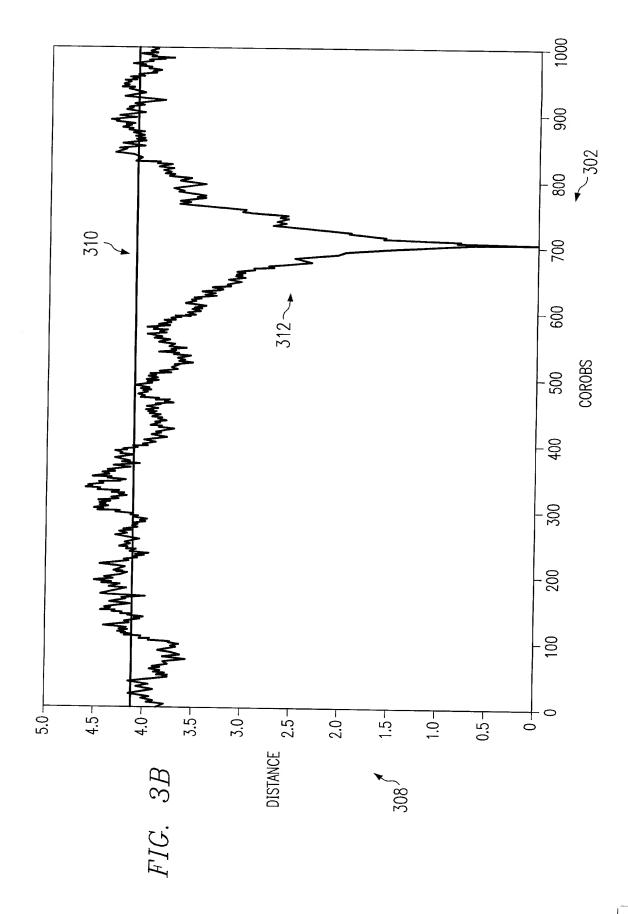
FIG. 3B

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FIG. 4   400

START

IDENTIFY NUMBER OF COROBS NEEDED IN STRING COROB — 402

IDENTIFY SEED COROB — 404

GENERATE EMPTY COROBS — 406

SELECT FIRST ENTRY IN SEED COROB — 408

PERFORM RANDOM WALK USING SELECTED ENTRY TO PRODUCE SEQUENCE OF VALUES — 410

DISTRIBUTE VALUES IN SEQUENCE TO EMPTY COROBS — 412

MORE ENTRIES IN SEED COROB? — 414

NO → END

YES

SELECT NEXT ENTRY IN SEED COROB — 416

500   *FIG. 5*

START

502 — INITIALIZE CURRENT VALUE

504 — IDENTIFY WINDOW OF POSSIBLE RANDOM VALUES

506 — SELECT RANDOM VALUE FROM WINDOW

508 — COMBINE CURRENT VALUE AND RANDOM VALUE TO PRODUCE NEXT VALUE

510 — PLACE NEXT VALUE IN COROB

SEQUENCE CONTAINS VALUE FOR EACH EMPTY COROB? — 512

YES → END

NO

514 — USE NEXT VALUE AS CURRENT VALUE

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FIG. 6

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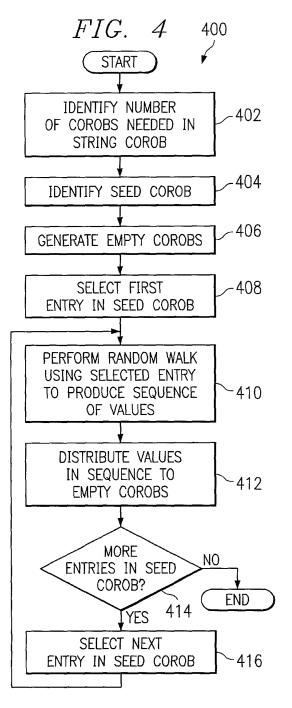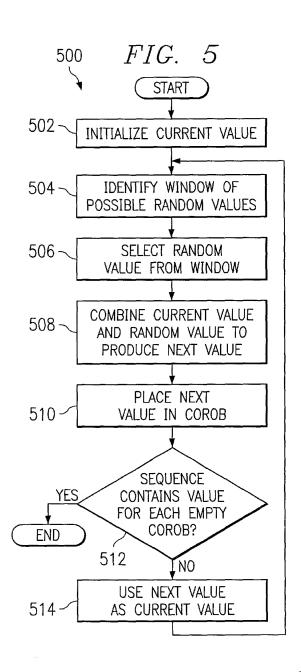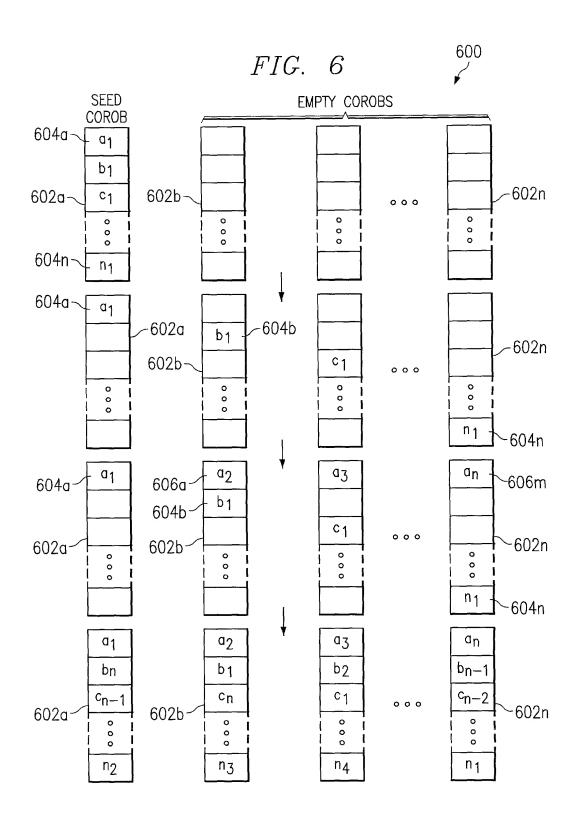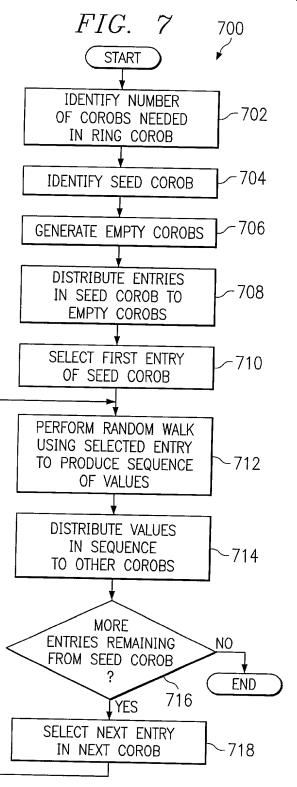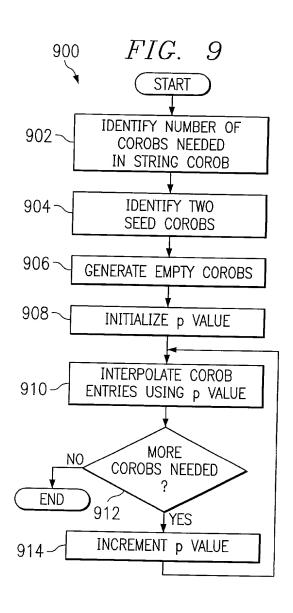For: Systems and Methods for Generating String
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FIG. 7   700

```
        START
          │
          ▼
┌─────────────────────┐
│  IDENTIFY NUMBER    │
│  OF COROBS NEEDED   │──702
│  IN RING COROB      │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│ IDENTIFY SEED COROB │──704
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│ GENERATE EMPTY COROBS│──706
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│  DISTRIBUTE ENTRIES │
│  IN SEED COROB TO   │──708
│  EMPTY COROBS       │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│  SELECT FIRST ENTRY │──710
│  OF SEED COROB      │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│ PERFORM RANDOM WALK │
│ USING SELECTED ENTRY│
│ TO PRODUCE SEQUENCE │──712
│ OF VALUES           │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│  DISTRIBUTE VALUES  │
│  IN SEQUENCE        │──714
│  TO OTHER COROBS    │
└─────────────────────┘
          │
          ▼
       ╱MORE╲
      ╱ENTRIES╲   NO
     ╱REMAINING ╲────► END
     ╲FROM SEED ╱
      ╲COROB  ╱  716
       ╲  ?  ╱
          │YES
          ▼
┌─────────────────────┐
│  SELECT NEXT ENTRY  │──718
│  IN NEXT COROB      │
└─────────────────────┘
```

900   *FIG. 9*

```
        START
          │
          ▼
┌─────────────────────┐
│ IDENTIFY NUMBER OF  │
902──│ COROBS NEEDED      │
│ IN STRING COROB     │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
904──│ IDENTIFY TWO       │
│ SEED COROBS         │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
906──│ GENERATE EMPTY COROBS│
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
908──│ INITIALIZE p VALUE │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│ INTERPOLATE COROB   │
910──│ ENTRIES USING p VALUE│
└─────────────────────┘
          │
          ▼
       ╱MORE╲
  NO  ╱COROBS╲
◄────╱NEEDED  ╲
 END ╲   ?   ╱
      ╲     ╱  912
       ╲   ╱
          │YES
          ▼
┌─────────────────────┐
914──│ INCREMENT p VALUE  │
└─────────────────────┘
```
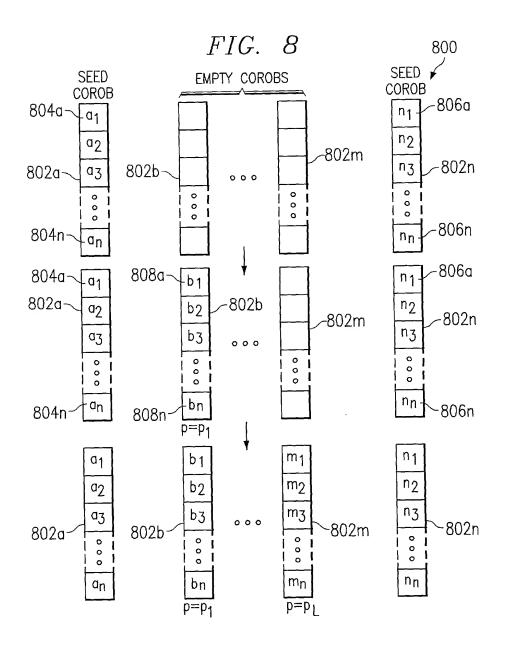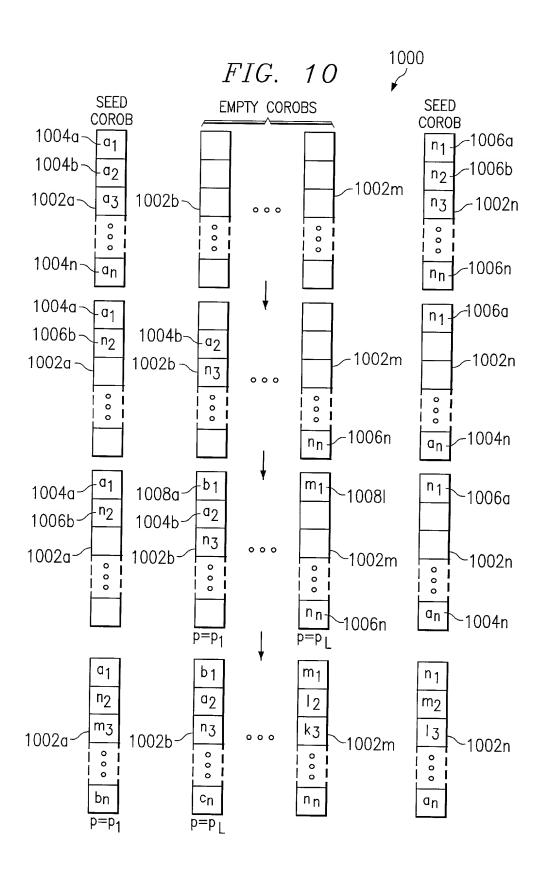
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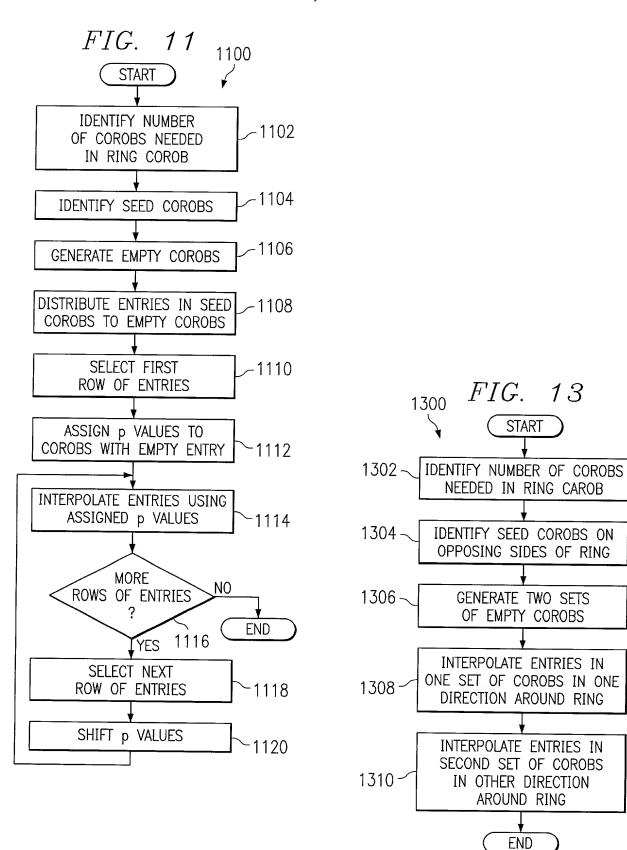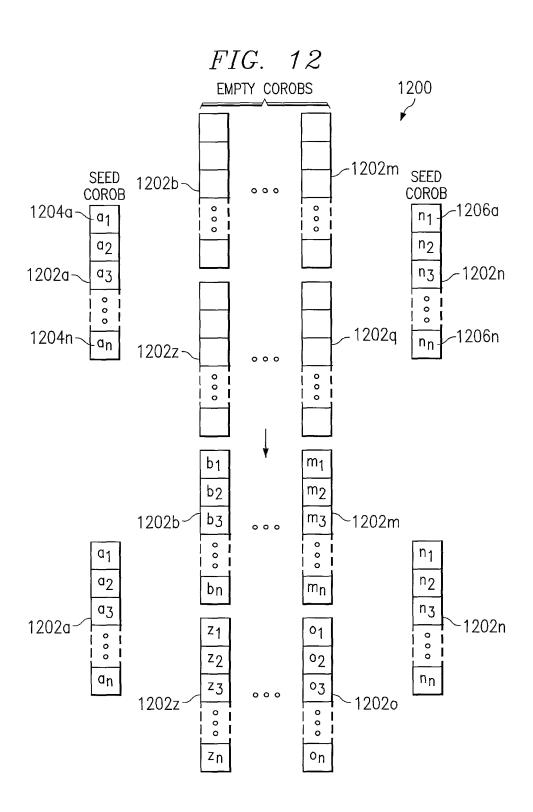Correlithm Objects
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FIG. 8

800

SEED COROB   EMPTY COROBS   SEED COROB

804a — a_1
a_2
802a — a_3
$\vdots$
804n — a_n

802b —

$\circ \circ \circ$

— 802m

n_1 — 806a
n_2
n_3 — 802n
$\vdots$
n_n — 806n

804a — a_1
802a — a_2
a_3
$\vdots$
804n — a_n

808a — b_1
b_2 — 802b
b_3
$\vdots$
808n — b_n
$p=p_1$

— 802m

$\circ \circ \circ$

n_1 — 806a
n_2
n_3 — 802n
$\vdots$
n_n — 806n

a_1
a_2
a_3
802a — $\vdots$
a_n

b_1
b_2
b_3
802b — $\vdots$
b_n
$p=p_1$

m_1
m_2
m_3
$\vdots$ — 802m
m_n
$p=p_L$

$\circ \circ \circ$

n_1
n_2
n_3
$\vdots$ — 802n
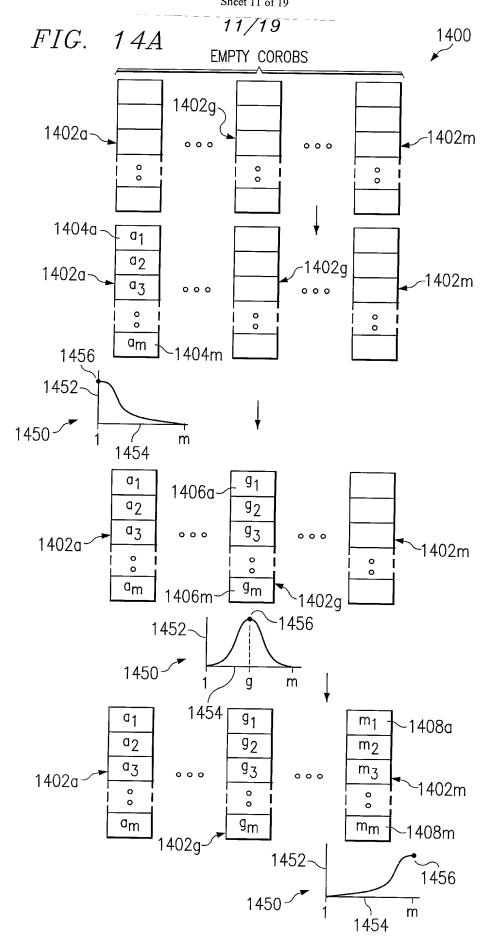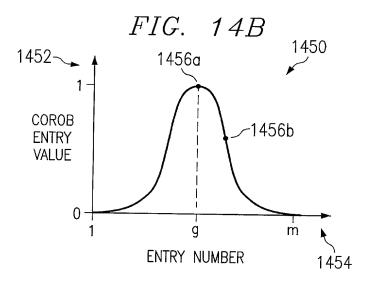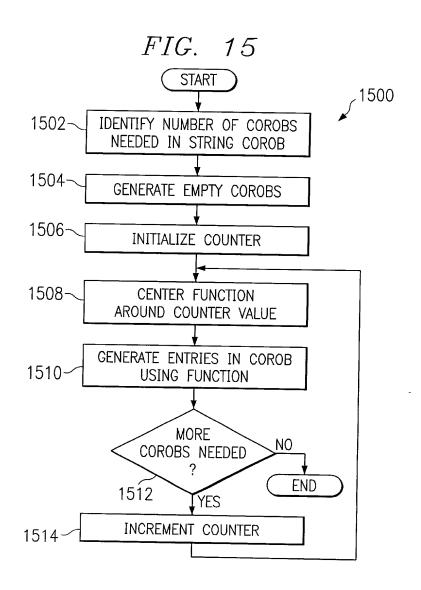n_n

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FIG. 10

1000

SEED COROB

EMPTY COROBS

SEED COROB

1004a — a_1
1004b — a_2
1002a — a_3
1004n — a_n

1002b

1002m

n_1 — 1006a
n_2 — 1006b
n_3 — 1002n
n_n — 1006n

1004a — a_1
1006b — n_2
1002a
1004b — a_2
1002b — n_3
1002m
n_n — 1006n
n_1 — 1006a
1002n
a_n — 1004n

1004a — a_1
1006b — n_2
1002a
1008a — b_1
1004b — a_2
n_3
1002b
m_1 — 1008l
1002m
n_n — 1006n
n_1 — 1006a
1002n
a_n — 1004n
$p=p_1$
$p=p_L$

a_1
n_2
m_3
1002a
b_n
$p=p_1$

b_1
a_2
n_3
1002b
c_n
$p=p_L$

m_1
l_2
k_3
1002m
n_n

n_1
m_2
l_3
1002n
a_n

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FIG. 11
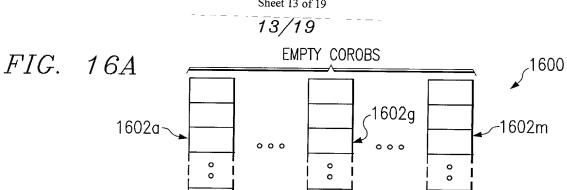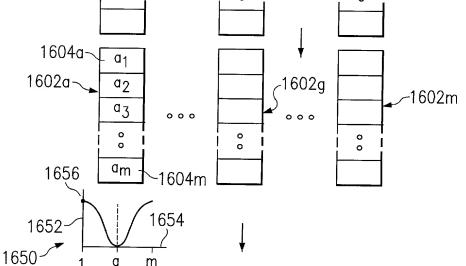
1100

START

IDENTIFY NUMBER
OF COROBS NEEDED
IN RING COROB — 1102

IDENTIFY SEED COROBS — 1104

GENERATE EMPTY COROBS — 1106

DISTRIBUTE ENTRIES IN SEED
COROBS TO EMPTY COROBS — 1108

SELECT FIRST
ROW OF ENTRIES — 1110

ASSIGN p VALUES TO
COROBS WITH EMPTY ENTRY — 1112

INTERPOLATE ENTRIES USING
ASSIGNED p VALUES — 1114

MORE
ROWS OF ENTRIES
? — 1116

NO

END

YES

SELECT NEXT
ROW OF ENTRIES — 1118

SHIFT p VALUES — 1120

FIG. 13

1300

START

IDENTIFY NUMBER OF COROBS
NEEDED IN RING CAROB — 1302

IDENTIFY SEED COROBS ON
OPPOSING SIDES OF RING — 1304

GENERATE TWO SETS
OF EMPTY COROBS — 1306

INTERPOLATE ENTRIES IN
ONE SET OF COROBS IN ONE
DIRECTION AROUND RING — 1308

INTERPOLATE ENTRIES IN
SECOND SET OF COROBS
IN OTHER DIRECTION
AROUND RING — 1310

END

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FIG. 12
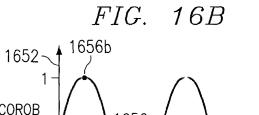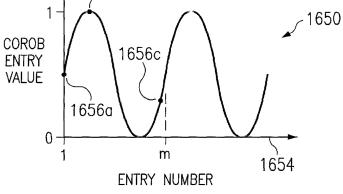
EMPTY COROBS

1200
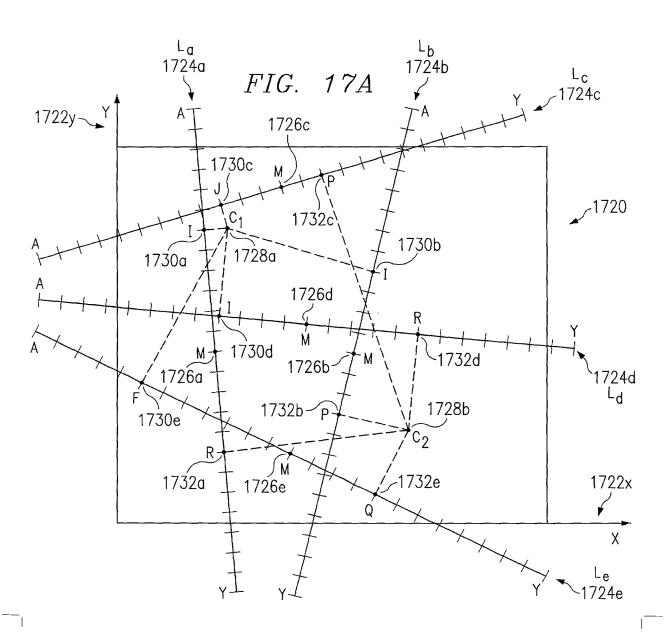
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FIG. 14A

1400

EMPTY COROBS

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FIG. 14B

1452

1456a

COROB
ENTRY
VALUE

1450

1456b

1
g
m

ENTRY NUMBER

1454

FIG. 15

START

1500

1502 — IDENTIFY NUMBER OF COROBS
NEEDED IN STRING COROB

1504 — GENERATE EMPTY COROBS

1506 — INITIALIZE COUNTER

1508 — CENTER FUNCTION
AROUND COUNTER VALUE

1510 — GENERATE ENTRIES IN COROB
USING FUNCTION

MORE
COROBS NEEDED
?

1512

NO

END

YES

1514 — INCREMENT COUNTER

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FIG. 16A
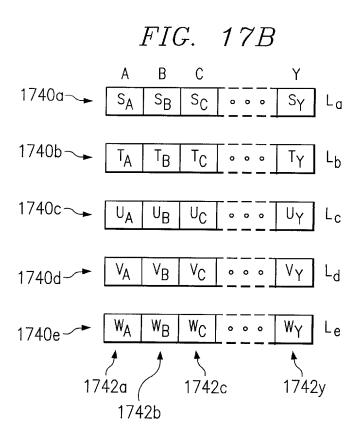
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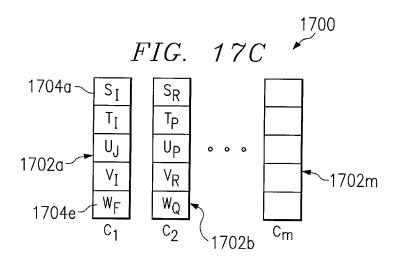## FIG. 16B
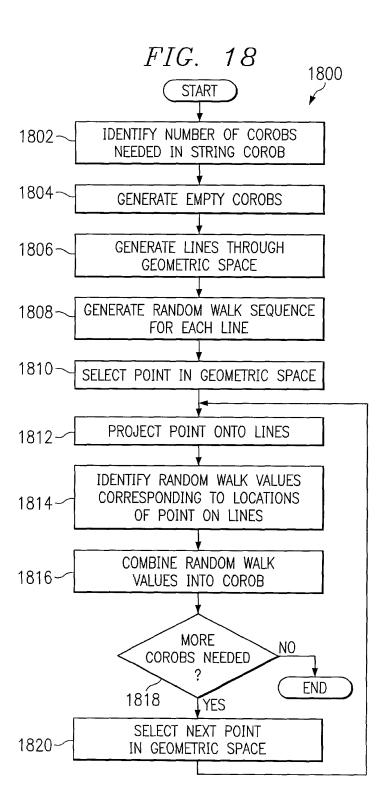

FIG. 17A

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FIG. 17B

$$1740a \rightarrow \boxed{S_A \mid S_B \mid S_C \mid \circ\ \circ\ \circ \mid S_Y} \quad L_a$$

$$1740b \rightarrow \boxed{T_A \mid T_B \mid T_C \mid \circ\ \circ\ \circ \mid T_Y} \quad L_b$$

$$1740c \rightarrow \boxed{U_A \mid U_B \mid U_C \mid \circ\ \circ\ \circ \mid U_Y} \quad L_c$$

$$1740d \rightarrow \boxed{V_A \mid V_B \mid V_C \mid \circ\ \circ\ \circ \mid V_Y} \quad L_d$$

$$1740e \rightarrow \boxed{W_A \mid W_B \mid W_C \mid \circ\ \circ\ \circ \mid W_Y} \quad L_e$$

A   B   C   Y

1742a   1742c   1742y

1742b

FIG. 17C

1700

1704a — S_I S_R

T_I T_P

1702a → U_J U_P $\circ\ \circ\ \circ$ — 1702m

V_I V_R

1704e — W_F W_Q

C_1 C_2 C_m

1702b

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FIG. 18
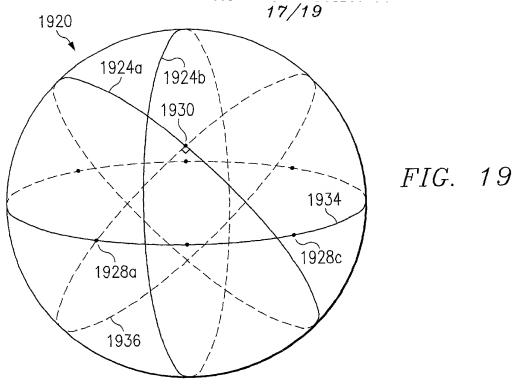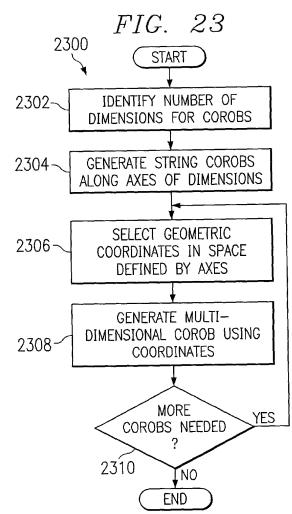
1800

START

1802 — IDENTIFY NUMBER OF COROBS
NEEDED IN STRING COROB

1804 — GENERATE EMPTY COROBS

1806 — GENERATE LINES THROUGH
GEOMETRIC SPACE

1808 — GENERATE RANDOM WALK SEQUENCE
FOR EACH LINE

1810 — SELECT POINT IN GEOMETRIC SPACE

1812 — PROJECT POINT ONTO LINES

1814 — IDENTIFY RANDOM WALK VALUES
CORRESPONDING TO LOCATIONS
OF POINT ON LINES

1816 — COMBINE RANDOM WALK
VALUES INTO COROB

MORE
COROBS NEEDED
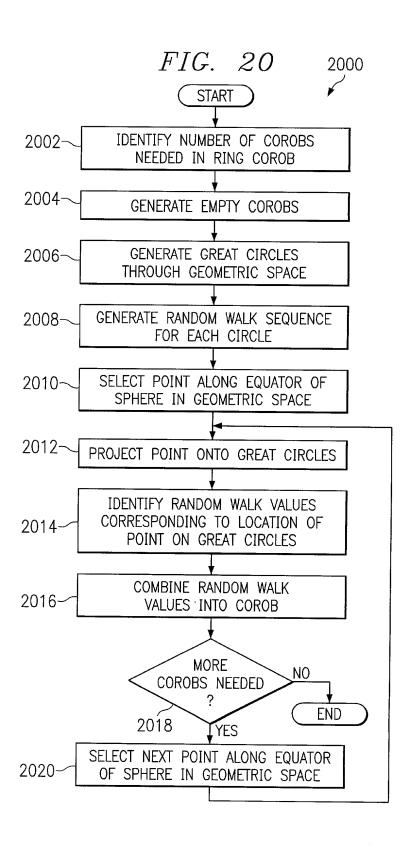?
1818

NO → END

YES

1820 — SELECT NEXT POINT
IN GEOMETRIC SPACE

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1920

1924a 1924b

1930

1934

1928c

1928a

1936

FIG. 19

FIG. 23

2300

START

2302 — IDENTIFY NUMBER OF
DIMENSIONS FOR COROBS

2304 — GENERATE STRING COROBS
ALONG AXES OF DIMENSIONS

2306 — SELECT GEOMETRIC
COORDINATES IN SPACE
DEFINED BY AXES

2308 — GENERATE MULTI-
DIMENSIONAL COROB USING
COORDINATES

MORE
COROBS NEEDED
?   YES

2310   NO

END

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FIG. 20   2000

(START)

2002 — IDENTIFY NUMBER OF COROBS
NEEDED IN RING COROB

2004 — GENERATE EMPTY COROBS

2006 — GENERATE GREAT CIRCLES
THROUGH GEOMETRIC SPACE

2008 — GENERATE RANDOM WALK SEQUENCE
FOR EACH CIRCLE

2010 — SELECT POINT ALONG EQUATOR OF
SPHERE IN GEOMETRIC SPACE

2012 — PROJECT POINT ONTO GREAT CIRCLES

2014 — IDENTIFY RANDOM WALK VALUES
CORRESPONDING TO LOCATION OF
POINT ON GREAT CIRCLES

2016 — COMBINE RANDOM WALK
VALUES INTO COROB

MORE
COROBS NEEDED
?   NO

2018   YES   END

2020 — SELECT NEXT POINT ALONG EQUATOR
OF SPHERE IN GEOMETRIC SPACE

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FIG. 21B

FIG. 21A

FIG. 22